



PATENT ABSTRACTS OF JAPAN

(11) Publication number: **11163157 A**(43) Date of publication of application: **18.06.99**

(51) Int. Cl.

H01L 21/8234**H01L 27/088****H01L 29/78**(21) Application number: **09342129**(71) Applicant: **RICOH CO LTD**(22) Date of filing: **26.11.97**(72) Inventor: **YAMANAKA KUNIHIRO**(54) **SEMICONDUCTOR DEVICE AND
MANUFACTURE THEREOF**

transistor is used.

COPYRIGHT: (C)1999,JPO

(57) Abstract:

PROBLEM TO BE SOLVED: To provide a semiconductor device, which matches low production cost, low consumption power and high-speed and a method of manufacturing the device.

SOLUTION: A first transistor has a high threshold voltage by a heavily doped substrate region 15 and as a punch-through between source, and drain regions can be inhibited by a punch-through stopper layer 9, an off leakage current in the first transistor can be reduced and the first transistor is suited to low consumption power. In a second transistor, as the second transistor is provided with a lightly doped channel region 13b in the entire channel region, the second transistor has a low threshold voltage and has a high drive current. The junction capacitance between source and drain diffused layers 11 is reduced by a lightly doped substrate region 7 formed under the bottoms of the layers 11. At the one time of a power supply, the second transistor is used and at the off time of the power supply, the first

